

REMARKS

In the Claims:

Claims 1-14 and 31-38 remain in this application. Claims 1 and 6 have been amended. New claims 31-38 have been added.

Election Requirement:

Applicant hereby affirms the telephone election to prosecute Group I claims 1-14, drawn to a method. As such, Applicant affirms the telephone election to withdraw Group II claims 15-30, drawn to a device.

Rejections Under 35 U.S.C. 102(b):

Claim 1 was rejected under 35 U.S.C. 102(b) as being unpatentable over Kato, et al. (US 5,394,490) (hereinafter "Kato"). Claim 1 has been amended to include some limitations formerly recited in claim 6, including that forming the conductive bumps comprises patterning a mask material deposited on the die to form pad openings, and depositing a second conductive layer in the pad openings. Kato fails to disclose such limitations.

As claim 1 now includes limitations formerly in claim 6, and claim 6 was rejected under 35 U.S.C. 103(a) as being unpatentable over Kato in view of Brandenburg (US 5,770,477) (hereinafter "Brandenburg"), that rejection is also addressed here.

Neither Kato nor Brandenburg suggest or disclose that forming the conductive bumps comprises patterning a mask material deposited on the die to form pad openings, and depositing a second conductive layer in the pad openings. The Examiner has mischaracterized Brandenburg as disclosing these limitations at col. 3, lines 60-65. Brandenburg merely discloses that solder bumps may be screen printed or electrodeposited. Nothing in the terms "screen printed" or "electrodeposited" discloses that forming the conductive bumps includes depositing a mask material, patterning the deposited mask material, or depositing a second conductive layer in openings in the patterned mask material,

as recited in claim 1. Applicants can only assume the Examiner is taking Official Notice under MPEP 2144.03 that “screen printing” and “electrodepositing” necessitates such actions. Applicants traverse such Official Notice and request that the Examiner either produce a supporting reference or withdraw the rejection.

Rejections Under 35 U.S.C. 103(a):

Claim 2 was rejected under 35 U.S.C. 103(a) as being unpatentable over Kato, under the ruling of In re Woodruff, 919 F.2d 1575, 1578, 16 USPQ2d 1934, 1936 (Fed. Cir. 1990).

Because Kato fails to disclose any height for a waveguide, the rejection is improper and should be withdrawn. As In re Woodruff is explained in MPEP 2144.05, “In the case where the claimed ranges ‘**overlap or lie inside ranges disclosed by the prior art**’ a *prima facie* case of obviousness exists.” (Emphasis added.) Thus, for In re Woodruff to be applied, the prior art must disclose a range within which the claimed value must fall. As stated by the Examiner, “Kato does not disclose a height of a waveguide,” (Office Action, page 7). Thus, since Kato fails to disclose a range of waveguide heights within which the height recited in claim 2 falls, the rejection is improper and should be withdrawn.

Claim 12 was rejected under 35 U.S.C. 103(a) as being unpatentable over Kato in view of Brandenburg.

The Examiner has mischaracterized Brandenburg as disclosing bonding the conductive bumps to the substrate at a temperature lower than a melting point of the conductive bumps as recited in claim 12. Note that the use of the term “conductive bumps” is consistent in the claim. Thus, when the conductive bumps are bonded as recited in claim 12, the temperature is lower than a melting point of the very **same** conductive bumps that are being bonded. Brandenburg, in contrast, only discloses that when one set 14 of solder bumps is being bonded, it is at a temperature lower than a **different** set 18 of bumps that has already been bonded (col. 3, lines 35-40). Brandenburg fails to disclose or suggest bonding a set of bumps at a temperature lower than the melting temperature of that set of bumps.

Pursuant to 37 C.F.R. 1.136(a)(3), applicant(s) hereby request and authorize the U.S. Patent and Trademark Office to (1) treat any concurrent or future reply that requires a petition for extension of time as incorporating a petition for extension of time for the appropriate length of time and (2) charge all required fees, including extension of time fees and fees under 37 C.F.R. 1.16 and 1.17, to Deposit Account No. 02-2666.

Respectfully submitted,

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